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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Thomas Manfredotti

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EXAMINER

MOMPER, ANNA M

ART UNIT

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4165

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/522,516	Applicant(s) MANFREDOTTI ET AL.	
	Examiner ANNA MOMPER	Art Unit 4165	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/27/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The following correspondence is a first office action on the merits. Amendment to the claims received 01/27/2005. Claims 1-2 as originally filed, claims 3-10 as currently amended and claim 11 newly added, are currently pending and have been considered below.

Claim Objections

1. Claims 7 and 10 are objected to because of the following informalities:

Claim 7 line 3 recites "formed on said pulleys", no pulleys have been previously introduced in this claim or its parent claim; therefore it is unclear as to what pulleys are being referenced to. Changing "said" to --a plurality-- or --at least one--, changing the dependency to a claim that introduced the pulleys, or introducing the pulleys into the parent claim would be methods of correcting this matter.

Claim 10 line 6 recites "said frame", no frame has been previously introduced in this claim or its parent claim, therefore it is unclear as to what frame is being referenced to. Changing "said" to --a--, changing the dependency to a claim that introduced the pulleys, or introducing the pulleys into the parent claim would be methods of correcting this matter.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United states.

3. Claims 1-3, 5-6, and 8-11 are rejected under 35 U.S.C. 102(b) as being anticipated by Ancrenaz (US 5,067,358).

As per Claim 1, Ancrenaz discloses an antivibration device comprising at least two sets each comprising two identical rotors (52, 62; 72, 82) having respective eccentric flyweights (51, 61; 71, 81; Column 3, Lines 29-30), said sets being disposed symmetrically about an axis of symmetry (Figure 1, 51 and 61 are symmetrical to 71 and 81 about a horizontal axis of symmetry as viewed from Figure 1), and the axes of rotation of said rotors being parallel to one another and orthogonal to said axis of symmetry (Figure 1, axes of rotation being taken into the page as viewed from Figure 1), and a drive system (15) for setting said rotors into rotation, the device being characterized: in that it comprises controllable moving equipment (17) carrying said drive system and capable of sliding along said axis of symmetry (Figure 3, 15 moves in direction of arrows, corresponding to a direction into the page as viewed from Figure 2) to vary the phase offset between the eccentric flyweight rotors of the sets (Column 4, Lines 17-24) ; and in that said drive system comprises a single motor (15) for rotating said rotors, having its axis disposed perpendicularly to said axis of symmetry (Figure 4A, Axis of the motors is into the page is perpendicular to the axis of symmetry which is horizontal as viewed from Figure 4A), and driving an endless connection (14) passing around said rotors (Figure 3) so that the lengths of the strands of the connection passing through said sets are equal (Figure 3, Due to the symmetry, the length of the

strand of the belt above the axis of symmetry will be equal to the length of the strand of the belt below the axis of symmetry).

As per Claim 2, Ancrenaz is silent as to the phase offset between the eccentric flyweight rotors disposed symmetrically facing each other about the axis of symmetry is equal to $2d/r$, where d corresponds to the linear displacement of said moving equipment along said axis of symmetry, and r corresponds to the identical winding radius of the endless connection about the centers of said rotors; however, the phase offset of $2d/r$ is an inherent feature of Ancrenaz (The phase offset is a direct result of the linear displacement of the moving equipment as both pulleys move distance d , increasing the belt length along one half of the system while decreasing it on the other. Each movement of d of the moving equipment results in a belt length increase or decrease of $2d$ due the portion of belt going into the pulley and the portion of belt coming out of the pulley, each being moved a distance of d , resulting in a total belt length change of $2d$. The phase offset is a measurement of angle, measured in degrees or radians, and corresponds to an arc length. The distance that the moving equipment moves can be translated into a measurement corresponding to an angle via an equation for arc length, as evidenced by Bird (Engineering Mathematics, Pg 140; Equation 1, the equation for the phase offset is equivalent to that of arc length where theta is equivalent to the phase offset, r is the radius, and s is the arc length which is equivalent to the change in belt length, $2d$) and therefore anticipates the applicant's claimed invention.

As per Claims 3 and 11, Ancrenaz also discloses the linear displacement stroke of said moving equipment is defined by two extreme positions, a first position in which

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the phase offset between the eccentric flyweight rotors is zero, and a second position in which the phase offset is equal to 180° (Column 4, Lines 27-34, The maximum force results when there is a phase difference of 0 degrees, meaning that the eccentric flyweight rotors are directly in phase with each other, creating constructive interference and the force from each eccentric flyweight rotor can be added together to create a maximum force. The zero force results when there is a phase difference of 180 degrees, meaning that the eccentric flyweight rotors are direction out of phase with each other, creating deconstructive interference and the force from the eccentric flyweight rotors cancel each other out, resulting in a force of zero).

As per Claim 5, Ancrenaz also discloses the controllable moving equipment is a carriage (17) sliding along said axis of symmetry and supporting said single motor (Figure 2 shows a carriage, 17, supporting motor 15).

As per Claim 6, Ancrenaz also discloses the endless connection is a belt (14) that winds around pulleys that are mounted on the axes of said rotors, and of said single motor (Column 3, Lines 58-62; Figure 3), which pulleys are contained in a common plane (Figure 2, shows a side view of all pulleys in a common plane as most closely noted by the number 14).

As per Claim 8, Ancrenaz also discloses the controllable moving equipment also includes at least one tensioning wheel (15') for tensioning said endless connection.

As per Claim 9, Ancrenaz also discloses the two sets are carried by a frame (13, 16) suitable for being secured to a vibrating structure (1), said controllable moving equipment being slidably mounted on said frame to slide along the axis of symmetry of

the two sets (13-15; Figure 3, motor moves in direction according to arrows, in the direction of the axis of symmetry which is horizontal as viewed from Figure 3).

As per Claim 10, Ancrenaz also discloses that for each set of rotors, it includes an intermediate rotary wheel (53, 73) co-operating with said endless connection to ensure that the two rotors are driven in contra-rotation, the two rotary wheels being arranged on said frame (13, 16) and being disposed respectively on either side of said axis of symmetry (Figure 3, the axis of symmetry is horizontal as viewed in Figure 3, and 53 and 73 or disposed on their respective sides of the axis of symmetry).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ancrenaz in view of Garnjost et al. (US 5,903,077).

Ancrenaz discloses all elements of the claimed invention, however fails to explicitly disclose at least one servo-motor for servo-controlling the position of said moving equipment, a plurality of sensors measuring the positions of said rotors for the purpose of calculating the phase offset between said sets, and a relationship for regulating and servo-controlling rotation of said single motor.

Garnjost et al. discloses a modular vibratory force generator in which comprises at least one servo- motor (13) for servo-controlling the position of said moving equipment (Column 3, Lines 65-66), a plurality of sensors (40, 40') measuring the positions of said rotors for the purpose of calculating the phase offset between said sets and a relationship for regulating and servo-controlling rotation of said single motor (Column 4, Lines 56-59, 65-66, Column 5, Lines 9-10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the antivibration device of Ancrenaz to include at least one servo-motor for servo-controlling the position of said moving equipment, a plurality of sensors measuring the positions of said rotors for the purpose of calculating the phase offset between said sets, and a relationship for regulating and servo-controlling rotation of said single motor as taught by Garnjost et al. for the purpose of causing the frequency and phase of the resultant vibratory force to be identical to the frequency and phase of said control signal (Column 2, Lines 43-44).

7. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ancrenaz in view of Burgess, Jr. et al. (US 5,584,375)

Ancrenaz discloses the belt is a cog belt (Column 3, Lines 58-59) and co-operates with said pulleys.

Ancrenaz is silent as to the pulley having teeth to co-operate with said cog belt.

Burgess, Jr. et al. discloses a single drive conveyor with vibrational motion altering phase control in which a belt (76) is a cog belt and co-operates with corresponding teeth formed on said pulleys (39, 40, 41, 42; Column 9, Lines 38-42).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the antivibration device of Ancrenaz to include the belt is a cog belt and co-operates with corresponding teeth formed on said pulleys as taught by Burgess, Jr. et al. for the purpose of accomplishing the driving function of the drive belt (Column 9, Line 43).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Barba et al. (US 6,212,445 B1) discloses an apparatus for generating a linear vibratory output force having variable amplitude. A force is generated by four rotating eccentric masses that are grouped in two pairs of two masses. The masses in each pair are counter-rotating with an adjustable phase relationship.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANNA MOMPER whose telephone number is (571)270-5788. The examiner can normally be reached on M-F 7:30-5 (First Friday Off).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynda Jasmin can be reached on (571) 272-6782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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